WHAT IS CLAIMED IS:

1. A holder for a tissue-type prosthetic heart valve attachable to a surgical delivery handle, the heart valve having an inflow end and an outflow end and a flow axis therebetween, the valve including an annular suture ring at the inflow end and a plurality of generally axially-extending commissure posts circumferentially-spaced around the outflow end that support occluding tissue surfaces of the valve, the holder comprising:

a plurality of lengths of flexible material extending in a taut fashion across the outflow end of the valve to prevent suture looping, each length of material having a first segment extending directly between adjacent commissure posts and crossing over each adjacent length of material adjacent to the commissure post.

2. The holder of claim 1, wherein the lengths of flexible material comprise lengths of suture.

3. The holder of claim 1, the holder further including a rigid structure that abuts the annular sewing ring at the inflow end of the valve, the lengths of flexible material each axially extending in second segments along two adjacent commissure posts and attaching to the rigid structure at two points such that each length may be severed close to one of its points of attachment to the rigid structure and pulled free of the valve along with the rigid structure by virtue of its remaining attachment point.

4. The holder of claim 3, wherein the rigid structure includes a mechanism for pulling the second segments toward the rigid structure causing the first segments to shorten and the commissure posts to flex inward toward each other.

5. The holder of claim 1, wherein the first segment of each length of flexible material comprises a band that is substantially wider than it is thick.

6. The holder of claim 5, the holder further including a rigid structure that abuts the annular sewing ring at the inflow end of the valve, the three lengths of flexible material each axially extending in second segments along two adjacent commissure posts

and attaching to the rigid structure at two points such that each length may be severed close to one of its points of attachment to the rigid structure and pulled free of the valve along with the rigid structure by virtue of its remaining attachment point.

7. The holder of claim 6, wherein the commissure posts are cloth covered, and wherein the second segments pass beneath the cloth covering of the respective commissure posts, the second segments having a configuration that is not as wide as the first segments.

8. A holder for a tissue-type prosthetic heart valve attachable to a surgical delivery handle, the heart valve having an inflow end and an outflow end and a flow axis therebetween, the valve including an annular suture ring at the inflow end and a plurality of generally axially-extending commissure posts circumferentially-spaced around the outflow end that support occluding tissue surfaces of the valve, the holder comprising:

a plurality of lengths of flexible material extending in a taut fashion across the outflow end of the valve to prevent suture looping, each length of material having a first segment extending in a band that is substantially wider than it is thick directly between adjacent commissure posts.

9. The holder of claim 8, the holder further including a rigid structure that abuts the annular sewing ring at the inflow end of the valve, the lengths of flexible material each axially extending in second segments along two adjacent commissure posts and attaching to the rigid structure at two points such that each length may be severed close to one of its points of attachment to the rigid structure and pulled free of the valve along with the rigid structure by virtue of its remaining attachment point.

10. The holder of claim 9, wherein the commissure posts are cloth covered, and wherein the second segments pass beneath the cloth covering of the respective commissure posts, the second segments having a configuration that is not as wide as the first segments.

11. The holder of claim 10, wherein the first segment of each length of flexible material extends over the tip of two adjacent commissure posts so as to cover the tip.

12. The holder of claim 9, wherein the rigid structure includes a mechanism for pulling the second segments toward the rigid structure causing the first segments to shorten and the commissure posts to flex inward toward each other.

13. The holder of claim 8, wherein the first segment of each length of flexible material extends over a tip of two adjacent commissure posts so as to cover the tips.

14. The holder of claim 13, wherein the adjacent lengths of flexible material overlap one another at the commissure post tips.

15. A holder for a tissue-type prosthetic heart valve attachable to a surgical delivery handle, the heart valve having an inflow end and an outflow end and a flow axis therebetween, the valve including an annular suture ring at the inflow end and a plurality of generally axially-extending commissure posts circumferentially-spaced around the outflow end that support occluding tissue surfaces of the valve, the holder comprising:

a central upstanding member passing along the axis from the inflow side to the outflow side of the leaflets; and

a plurality of lengths of flexible material extending in a taut fashion across the outflow end of the valve to prevent suture looping, each length of flexible material having first segments extending radially inward from one of the commissure posts to the central upstanding member.

16. The holder of claim 15, wherein the central upstanding member is hollow, and wherein each length of flexible material passes into and through the hollow upstanding member.

17. The holder of claim 15, wherein the central upstanding member is solid and includes notches for receiving midpoints of the first segments of the lengths of flexible material, each first segment extending from one of the commissure posts radially inward to the upstanding member and then radially outward to an adjacent commissure post via a notch in the upstanding member.

18. The holder of claim 17, the holder further including a rigid structure that abuts the annular sewing ring at the inflow end of the valve, the lengths of flexible material each axially extending in second segments along two adjacent commissure posts and attaching to the rigid structure at two points such that each length may be severed close to one of its points of attachment to the rigid structure and pulled free of the valve along with the rigid structure by virtue of its remaining attachment point, the central upstanding member being rigidly attached to the rigid structure.

19. The holder of claim 17, wherein the central upstanding member comprises a wide base on its inflow end and a narrow shaft that passes between and to the outflow side of the leaflets.

20. The holder of claim 19, wherein the narrow shaft has a non-circular cross-section.

21. The holder of claim 20, wherein the valve is of the type that has three leaflets and three commissure posts, and the narrow shaft has an equilateral triangular cross-section with the corners of the triangle oriented to point toward the three commissure posts such that the flat sides of the triangle are oriented to abut the three leaflets.

22. The holder of claim 18, wherein the rigid structure includes a mechanism for pulling the second segments toward the rigid structure causing the first segments to shorten and the commissure posts to flex inward toward each other.

23. The holder of claim 15, wherein the central upstanding member has an axial length that extends axially beyond the commissure posts such that each first segment of the lengths of flexible material extends at an angle both radially inward and axially in the outflow direction to an outflow end of the upstanding member.